



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/049,903	02/20/2002	Takahide Itoh	219918US3PCT	2367
22850	7590	03/05/2008	EXAMINER	
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			TRIEU, THERESA	
		ART UNIT	PAPER NUMBER	
		3748		
		NOTIFICATION DATE	DELIVERY MODE	
		03/05/2008	ELECTRONIC	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/049,903	ITOH ET AL.
	Examiner Theresa Trieu	Art Unit 3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) Responsive to communication(s) filed on 23 January 2008.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) Claim(s) 1 and 3-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1 and 3-6 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 06/08/07 & 02/20/02 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____	6) <input type="checkbox"/> Other: _____

## **DETAILED ACTION**

This Office Action is responsive to the applicants' amendment filed on Jan. 23, 2008.

Claims 1 and 3-5 have been amended. Claim 2 has been canceled. Claim 6 has been added. Accordingly, claims 1 and 3-6 are pending in this application.

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on Jan. 23, 2008 has been entered.

### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "around an axis; direction parallel to the axis" recited in claim 1, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the

Art Unit: 3748

drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

*Specification*

3. The title of the invention filed on Nov. 23, 2007 is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "STEP-TYPE SCROLL COMPRESSOR HAVING AN AXIAL COMPLIANCE MECHANISM".

4. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: (i.e.: "a second scroll configured to orbit the first scroll...so as to be orbitally movable around an axis" and "an elastic body..... in a direction parallel to the axis" recited in claim 1).

*Claim Objections*

5. Claim 1 is objected to because of the following informalities: page 2, line 11, "in an direction" should be changed to -- in a direction --. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The limitation "to be orbitally movable around an axis" renders the claims indefinite because it is unclear that the second scroll being orbitally movable around of what element has an axis, as applicants have claimed.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 3748

7. Claims 1, 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young (Patent Number 3,874,827) in view of Terauchi (Patent Number 4,477,238).

Regarding claims 1, 3 and 6, as shown in Fig. 5, Young discloses scroll compressor comprising: a first scroll 29 including a first spiral wall 31 standing on an inner side face of a first end plate 30, and said first scroll supported so as to float freely with respect to a frame secured to a housing; a second scroll 25 configured to orbit the first scroll and including a second spiral wall 27 standing on an inner side face of a second end plate 26, and supported so as to be orbitally movable around an axis while being prevented from rotating, with the first and second spiral walls engaged with each other, and an elastic body 120, disposed external to the first and second scroll (29, 25), pressing at least one of the first scroll and the second scroll against the other scroll in a direction parallel to the axis, the elastic member 120 pressing the first scroll against the second scroll and is not in direct contact with the second scroll 29, wherein a back pressure chamber 133 is provided on an outer side face of the first end plate 30, and one scroll is pressed against the other scroll by introducing fluid which is compressed by the first scroll and the second scroll into the back pressure chamber. However, Young fails to disclose the structure of the first and second spiral walls.

Regarding claim 1, as shown in Fig. 3 , Terauchi teaches that it is conventional in the scroll compressor art to utilize a step portion provided on the one side face of at least one of the first and the second end plate (211, 221), which has a high part with a height thereof which is high on a central side in a spiral direction, and a low part with a height thereof which is low at an outer peripheral end side; and an upper rim of the wall of the other of the fixed scroll and the orbiting scroll is divided into a plurality of parts to form a stepped shape having, corresponding

to the parts, a low upper rim where the height of the part is low at a central side in the spiral direction, and a high upper rim where the height of the part is high at an outer peripheral end side. It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have utilized the first and second spiral walls having stepped portion, as taught by Terauchi in the Young apparatus, since the use thereof would have provided an improved scroll compressor which increased displacement volume without increasing the diameter of the compressor or increasing the reexpansion volume.

8. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young as applied to claim 1 above, and further in view of Nieter et al. (Nieter) (Patent Number 5,256,044).

The modified Young device discloses the invention as recited above; however, the modified Young fails to disclose back pressure chamber being provided in the outer side face of the second scroll.

Regarding claims 4 and 5, as shown in Fig. 3, Nieter teaches that it is conventional in the compressor art to utilize the back pressure chamber (25, 27) is provided on the side face of the end plate of the second scroll (13); a bearing member (not numbered; however, clearly seen in Fig. 3) which performs orbit movement while engaging the outer side face of the end plate of the second scroll (21), wherein the back pressure chamber is provided between the second scroll and the bearing member. It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have utilized the back pressure being provided on the end plate of the second scroll, as taught by Nieter in the modified Young apparatus, since the use thereof

Art Unit: 3748

would have reduced the friction between the orbiting and fixed scrolls and improved the axial compliance in a scroll compressor.

*Communication*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Theresa Trieu whose telephone number is 571-272-4868. The examiner can normally be reached on Monday-Friday 8:30am- 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on 571-272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TT  
March 3, 2008

/Theresa Trieu/  
Primary Examiner, Art Unit 3748